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Effectiveness of Foliar Fungicides by Timing on Hybrid Corn

Abstract

Fungicides were rarely used on hybrid corn prior to 2007, however, in the past few years, some farmers have included fungicides in their common crop production, particularly as the value of grain has increased. Fungicides are recommended for foliar disease management to protect yield potential. There also have been reports of increased yields in the absence of disease. A number of fungicides are registered for use on corn. The objectives of this project were to evaluate the yield response of hybrid corn to foliar fungicide application at various timings.

Keywords

RFR A1175, Plant Pathology

Disciplines

Agricultural Science | Agriculture | Plant Pathology

Effectiveness of Foliar Fungicides by Timing on Hybrid Corn

RFR-A1175

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Introduction

Fungicides were rarely used on hybrid corn prior to 2007, however, in the past few years, some farmers have included fungicides in their common crop production, particularly as the value of grain has increased. Fungicides are recommended for foliar disease management to protect yield potential. There also have been reports of increased yields in the absence of disease. A number of fungicides are registered for use on corn. The objectives of this project were to evaluate the yield response of hybrid corn to foliar fungicide application at various timings.

Materials and Methods

Foliar fungicides were each applied to hybrid corn Pioneer P0115XR at either growth stage V5, R1, or R2 (blister), or at V5 followed by a second application at R1. Products applied at V5 were Headline (6 oz/acre), Quadris (6 oz/acre) and Stratego YLD (4 oz/acre), while Headline AMP (10 oz/acre), Quilt Xcel (14 oz/acre), and Stratego YLD (4 oz/acre) were applied at R1 or R2. The experimental design was a randomized plot design. Each plot was 8 rows wide (30-in. row spacing) by 50 ft long.

Corn was planted with a 7000 series John Deere 8-row planter calibrated to plant 35,600 seeds/acre on May 5. Previous crop was soybeans. Fungicides were applied with a hand boom on June 8 (V6), July 21 (R1), and August 2 (R2). Spray solutions were applied in a volume of 15 gal/acre. Foliar disease assessments were done on the ear leaf and in the canopy above the ear leaf on August 23. At R6 (September 19), stalk rot severity was assessed by splitting the stalks of 5 plants. The University of Illinois Stalk Rot Scale was used where 0 = no disease and 5 = lodging due to stalk rot. The middle four rows of each plot were harvested with a John Deere 9410 combine on October 11.

Results and Discussion

The growing season at Crawfordsville started wet and then became very dry. Northern leaf blight was present, but at very low levels. For all fungicide products and timings, there was no evidence of an affect of treatment on disease severity, yield or moisture.

Studies on the efficacy of foliar fungicide timing for disease management and yield response are expected to continue in 2012.

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Table 1. Effect of fungicide and timing of fungicide applications on stalk rot severity, yield, and harvest moisture of corn at Crawfordsville.

Treatments	Disease severity			Harvest moisture	Yield ^d
	Ear leaf ^a	Top canopy ^b	Stalk rot ^c		
Check	0.38	0.11	0.65	17.2	156.7
Headline 6 oz V6	0.12	0.10	0.30	16.4	152.0
Headline AMP 10 oz R1	0.64	0.07	0.10	17.1	157.9
Headline 6 oz V6 + Headline AMP 10 oz R1	0.38	0.11	0.10	17.1	165.6
Headline AMP 10 oz R2	0.32	0.05	0.15	17.2	160.9
Stratego YLD 4 oz V6	1.38	0.27	0.50	17.3	162.4
Stratego YLD 4 oz R1	0.46	0.08	0.20	17.0	151.0
Stratego YLD 4 oz V6 + Stratego YLD 4 oz R1	0.09	0.02	0.13	17.0	168.5
Stratego YLD 4 oz R2	0.92	0.05	0.50	17.6	157.3
Quadris 6 oz V6	0.42	0.10	0.15	17.4	152.3
Quilt Xcel 14 oz R1	0.21	0.05	0.15	17.0	155.3
Quadris 6 oz V6 + Quilt Xcel 14 oz R1	0.32	0.07	0.30	17.3	150.2
Quilt Xcel 14 oz R2	0.57	0.08	0.20	17.5	158.2
LSD _{0.1}	NS	NS	NS	NS	NS
C.V. %	165.1	179.5	154.5	9.4	13.6

^aPercent of ear leaf blighted with disease. Disease was assessed on 5 plants/plot.^bMean disease severity in the canopy above the ear leaf on a plot basis.^cStalk rot severity at R6 (where 0 = healthy and 5 = lodging due to stalk rot (R. Hines, University of Illinois stalk rot scale)).^dBushels/acre at 15.5 percent moisture.